

Recent Activity of VNIIM Neutron Group in 2009 – 2011

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VNIIMs neutron laboratory measurement capabilities are the following:

1. Radionuclide sources emission rate measurement.

For this purposes we have three inepended methods - Mn-bath, Water-bath and associated particle counting. Last five years Water-bath technique is not used because it requires long time for measurement, and in future, we planned to exclude it.

This point is supported by key-comparisons.

2. Thermal neutrons fluence rate measurements.

For this purposes we use gold foils technique. Measurements in diffusion fields are supported by key-comparisons. We try to participate in key-comparisons on measurements thermal fluence rate in directed beam but cannot finish successfully due to we have no real thermal beam and our beam-like field is not suitable.

3. Fast neutrons fluence rate measurements.

For this purposes we have set of radionuclide sources, low-voltage neutron generator, long-counter, original design radiometer MAR, which was used as transfer instrument in CCRI(III)-K10 key-comparisons.

4. Calibration of neutron radiometers and dosimeters in ISO-8529 recommended neutron fields. Five years ago we try to participate in EURAMET comparisons on this area (project # 608), in nearest future we planned participating in APMP comparisons.

During 2009 - 2011 years VNIIMs neutron laboratory had no new successful developments, the only collaborator was busy with routine work:

- modernization of the standard equipment and techniques for neutron sources and fields parameters measurements;
- measurements and unsuccessfully attempts to interpretation of measurements results according CCRI(III)-K8 key-comparisons;
- certification of secondary standards used in research institutes, instrument-producing and shipbuilding enterprises, nuclear power stations, defense ministry etc;
- testing and certification of new types of measuring - system;
- calibration and verification of measuring instruments for users and manufacturers;
- elaboration of the normative documents;
- preparing the part of paper for *Metrologia* special issue.